

10mm Auto, .44 Remington Magnum, etc. would all be equipped with slugs containing an o-ring groove. O-rings would be provided in the Preferred Embodiment safety cartridge packaging with instructions giving the gun owner the option of installing the o-ring to his safety cartridge. The instructions would state:

"If you elect to install the o-ring to the slug of your safety cartridge, the fired safety cartridge would be much more difficult to remove from your gun and may even require the services of a gunsmith. Using the o-ring improves safety further. It would be nearly impossible for a child or other unauthorized person who has not read the instructions to remove the fired JamIt safety cartridge equipped with the o-ring. The o-ring causes the slug to be stuck in the barrel. Considerable force (up to 100 pounds and more depending on lubrication, interference and rubber hardness) must be applied to the slug to move it out of the barrel."

The JamIt safety cartridge is packaged with the o-ring separated from the cartridge. If the gun owner decides he wants the increased safety of an o-ring equipped safety cartridge, he would then choose to install the o-ring himself. He would have only himself to blame if he is forced to employ a gunsmith to clear the fired JamIt safety cartridge from his jammed firearm. If he decides against employing the o-ring, it would be much easier to clear the fired JamIt safety cartridge from his weapon but less safe. It is very probable that in either case, clearing the weapon of a fired JamIt safety cartridge will never need to be done the need arises only if some unauthorized person tries to fire his gun. One JamIt safety cartridge should last the gun owner a lifetime since its very unlikely it would ever be used. It should also be emphasized that a fired JamIt safety cartridge does not damage the firearm in any way.

In summary, safety cartridges are presented for 9mm, .38 Special, .357 Magnum, and .45 ACP semi-automatic pistols and revolvers and bolt action, lever action, pump, or semi-automatic 30-06 rifles and 12 gauge shotguns. Safety cartridges for other popular caliber firearms can easily be developed and produced. Most of the safety cartridge parts are low cost and standard (primer, pin, cartridge case and o-ring) or common (same spring was common to safety cartridges for all handguns and rifles had to be lengthened for the 12 gauge shotgun because of increased primer gas output). The slugs were made from red anodized aluminum or white lightweight plastic (Delrin) so the gun owner could visually identify the safety cartridge from live ammunition. Extensive testing on lightweight slugs (vs heavy brass slugs) showed that fired safety cartridge elongation is doubled to about 5 inches in pistol and revolver applications assuring a jammed and safe firearm. Longer fired safety cartridge elongation (7 to 10 inches) was observed for rifles and shotguns due to longer cartridge length and a longer spring specified for shotguns.

The safety cartridge was introduced at the Las Vegas SHOT SHOW in February, 2004. Gun store owners were interested in buying safety cartridges for .32 Auto and .380 Auto handguns as well as .45 ACP, .38 Special / .357 Magnum and 9mm Luger handguns. FIG. 11 is a sectioned view of my Final Alternative Preferred Embodiment .32 Auto safety cartridge 10F. It is similar to FIGS. 1, 5 and 7 except it does not contain a pin 3, the .32 Auto cartridge case 2E is drilled 13 and slotted 14 rather than cross drilled and the spring 15 contains straight wire sections at both ends which are bent 90 degrees and cut off on the slug end 8 and cartridge case base end 16 as shown in FIG. 11. This Final Alternative Preferred Embodiment allows a maximum number of spring 15 coils in the small .32 Auto safety cartridge 10F which provides increased strength and

structural integrity during expansion caused by primer 1 ignition. The 90 degree attachment joints 8 and 16 provide more strength than the soldered double coil 6 / pin 3 attachments shown in FIGS. 1, 5 and 7. Safety cartridge cost is also reduced considerably with the FIG. 11 design because:

- There are only four parts (no pin 3 or o-ring 12E are required).
- The spring 15 is easier to manufacture (soldered double coil end 6 replaced by simple straight wire end).
- Assembly time to attach cartridge case 2E, spring 15 and slug 5E is reduced considerably.
- A decision was made not to offer the o-ring because of cost and liability considerations.

FIG. 12 is a sectioned view of my Final Alternative Preferred Embodiment .380 Auto safety cartridge 10G. It is the same as the .32 Auto safety cartridge 10F shown in FIG. 11 except it contains a .380 Auto slotted and drilled cartridge case 2F and slug 5. The same slug 5 is employed for .380 Auto (FIG. 12), 9mm Luger (FIGS. 1 - 3) and .38 Special / .357 Magnum (FIGS. 5, 6 and 10). The same spring 15 is now used in all of the handgun caliber's: .45 ACP, .38 Special / .357 Magnum, 9mm Luger, .380 Auto (FIG. 12) and .32 Auto (FIG. 11). These Final Alternative Preferred Embodiment designs are presently in production.

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